```
     FILE 'CA' ENTERED AT 13:50:38 ON 07 MAY 2003
L16      913519 S ANST/RL
L17       41697 S AMYLASE
L18      986411 S CHLORIDE
L19         179 S L17 AND L18 AND L16
                S 9000-90-2/REG#

     FILE 'REGISTRY' ENTERED AT 13:52:42 ON 07 MAY 2003
L20           1 S 9000-90-2/RN

     FILE 'CA' ENTERED AT 13:52:42 ON 07 MAY 2003
L21       13522 S L20
                S 16887-00-6/REG#

     FILE 'REGISTRY' ENTERED AT 13:53:22 ON 07 MAY 2003
L22           1 S 16887-00-6/RN

     FILE 'CA' ENTERED AT 13:53:22 ON 07 MAY 2003
L23       55506 S L22
L24          36 S L21 AND L23 AND L16
L25         182 S SODIUM ACTIVATION
L26           1 S L25 AND L20

     FILE 'BIOSIS' ENTERED AT 14:21:03 ON 07 MAY 2003
L27      329263 S SODIUM
L28      381281 S ACTIVATION
L29        1723 S L27 (3A) L28
L30       26714 S AMYLASE
L31           3 S L29 AND L30
L32        9496 S ALPHA AMYLASE
L33        1116 S L30 AND L27
L34          47 S L28 AND L33
L35          44 S L34 NOT L31
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=> d bib ab ind 4-6, 8, 9, 13, 15-20, 22-24, 27, 31, 35, 36

L24 ANSWER 4 OF 36 CA COPYRIGHT 2003 ACS
AN 133:28248 CA
TI Reagent compositions for measuring electrolyte using alpha-amylase
IN Kimata, Shinsuke; Mizuguchi, Katsuhiko; Kawamura, Yoshihisa
PA Toyo Boseki Kabushiki Kaisha, Japan
SO Eur. Pat. Appl., 15 pp.
CODEN: EPXXDW
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1008853	A2	20000614	EP 1999-124636	19991210
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	JP 2000228997	A2	20000822	JP 1999-340620	19991130
	US 6387646	B1	20020514	US 1999-458147	19991209
PRAI	JP 1998-353267	A	19981211		

AB The present invention provides a combination of reagent compns. for measuring an electrolyte which are excellent in stability, precision and quantitativity and have high soln. stability sufficient to withstand distribution. In the combination of reagent compns. of the present invention, a chelating agent and an inactivated .alpha.-amylase capable of being reversibly activated by the electrolyte are formulated sep. from each other. Calcium ion was detd. in serum using inactivated .alpha.-amylase derived from human saliva in a compn. also contg. 1,2-bis(o-aminophenoxy)ethane tetraacetic acid as chelating agent and 2-hydroxypyridine-N-oxide as amylase inhibitor. The second compn. contained .alpha.-amylase substrate.
IC ICM G01N033-84
ICS C12Q001-40; G01N031-22
CC 9-2 (Biochemical Methods)
Section cross-reference(s): 7
ST reagent electrolyte alpha amylase
IT Blood analysis
Chelating agents
Electrolytes, biological
(reagent compns. for measuring electrolyte using alpha-amylase)
IT Reagents
RL: ARG (Analytical reagent use); **ANST (Analytical study)**; USES (Uses)
(reagent compns. for measuring electrolyte using alpha-amylase)
IT Saliva
(.alpha.-amylase of, of human; reagent compns. for measuring electrolyte using alpha-amylase)
IT Pancreas
(.alpha.-amylase of, of pig; reagent compns. for measuring electrolyte using alpha-amylase)
IT 273917-92-3
RL: ARU (Analytical role, unclassified); **ANST (Analytical study)**
(as chelating agent; reagent compns. for measuring electrolyte using alpha-amylase)
IT 79-07-2, 2-Chloroacetamide 128-53-0, N-Ethylmaleimide 2682-20-4, 13161-30-3, 2-Hydroxypyridine-N-oxide 26172-55-4, 5-Chloro-2-methyl-4-isothiazolin-3-one 30007-47-7, 5-Bromo-5-nitro-1,3-dioxane 39236-46-9, Imidazolidinyl urea
RL: ARU (Analytical role, unclassified); **ANST (Analytical study)**
(as .alpha.-amylase inhibitor; reagent compns. for measuring electrolyte using alpha-amylase)
IT 157381-11-8
RL: ARG (Analytical reagent use); **ANST (Analytical study)**; USES

(Uses)
(as .alpha.-amylase substrate; reagent compns. for measuring electrolyte using alpha-amylase)

IT 14127-61-8, Calcium ion, analysis **16887-00-6**, Chlorine ion, analysis
RL: ANT (Analyte); **ANST (Analytical study)**
(reagent compns. for measuring electrolyte using alpha-amylase)

IT **9000-90-2**, .alpha.-Amylase
RL: ARG (Analytical reagent use); BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); **ANST (Analytical study)**; BIOL (Biological study); USES (Uses)
(reagent compns. for measuring electrolyte using alpha-amylase)

L24 ANSWER 5 OF 36 CA COPYRIGHT 2003 ACS
AN 133:1923 CA
TI Evaluation of a direct .alpha.-amylase assay using 2-chloro-4-nitrophenyl-.alpha.-D-maltotrioside
AU Lorentz, Klaus; Gutschow, Barbara; Renner, Florian
CS Institut fur Klinische Chemie, Medizinische Universitat Lubeck, Lubeck, Germany
SO Clinical Chemistry and Laboratory Medicine (1999), 37(11/12), 1053-1062
CODEN: CCLMFW; ISSN: 1434-6621
PB Walter de Gruyter GmbH & Co. KG
DT Journal
LA English
AB We present the adaptation of an IFCC method for .alpha.-amylase using 2-chloro-4-nitro-phenyl-.alpha.-D-maltotrioside as substrate (1) suited for routine work at 37.degree.C. In the assay, a const. proportion of substrate, i.e. 92%, is directly converted to 2-chloro-4-nitrophenol and maltotriose. The method is based on multi- and univariate optimization leading to following measurement conditions; substrate, 2.25 mmol/l; chloride, 310 mmol/l; calcium 5.0 mmol/l; 4-morpholinoethanesulfonic acid, 50 mmol/l; pH 6.28. The assay may be carried out manually or by mechanized procedures, with substrate or sample start, and it shows these anal. properties in measuring amylase activity of sera: no lag phase, detection limit 2.9 U/l, linear range .ltoreq.820 U/l (for 300 s) or .ltoreq.1450 U/l (for 120 s of measurement), and total manual imprecision 3.2% (CV) at 46 U/l. Bilirubin .ltoreq.630 .mu.mol/l, Hb .ltoreq.6 g/l, triacylglycerols .ltoreq.30 mmol/l, heparin .ltoreq.100 kU/l, and glucose .ltoreq.120 mmol/l do not interfere. For adults, we established a preliminary 0.95-ref. interval of 30-90 U/l not dependent on sex or age. A close assocn. with the IFCC method demonstrates the reliable transfer of its measurement conditions to a robust routine method with minimal changes.
CC 7-1 (Enzymes)
ST amylase detn chloronitrophenyl maltotrioside
IT Blood analysis
Blood serum
Saliva
Spectroscopy
pH
(.alpha.-amylase detn. at 37.degree.C by spectrometry using 2-chloro-4-nitrophenyl-.alpha.-D-maltotrioside)

IT Glycerides, analysis
RL: ARU (Analytical role, unclassified); **ANST (Analytical study)**
(.alpha.-amylase detn. at 37.degree.C by spectrometry using 2-chloro-4-nitrophenyl-.alpha.-D-maltotrioside)

IT **9000-90-2**, .alpha.-Amylase
RL: ANT (Analyte); **ANST (Analytical study)**
(.alpha.-amylase detn. at 37.degree.C by spectrometry using 2-chloro-4-nitrophenyl-.alpha.-D-maltotrioside)

IT 118291-90-0, 2-Chloro-4-nitrophenyl-.alpha.-D-maltotrioside
RL: ARG (Analytical reagent use); BPR (Biological process); BSU (Biological study, unclassified); **ANST (Analytical study)**; BIOL

(Biological study); PROC (Process); USES (Uses)
(.alpha.-amylase detn. at 37.degree.C by spectrometry using 2-chloro-4-nitrophenyl-.alpha.-D-maltotrioside)

IT 619-08-9, 2-Chloro-4-nitrophenol
RL: ARG (Analytical reagent use); BSU (Biological study, unclassified); MFM (Metabolic formation); **ANST (Analytical study)**; BIOL (Biological study); FORM (Formation, nonpreparative); USES (Uses)
(.alpha.-amylase detn. at 37.degree.C by spectrometry using 2-chloro-4-nitrophenyl-.alpha.-D-maltotrioside)

IT 50-99-7, D-Glucose, analysis 333-20-0, Potassium thiocyanate 635-65-4, Bilirubin, analysis 7440-70-2, Calcium, analysis 9005-49-6, Heparin, analysis **16887-00-6**, Chloride, analysis
RL: ARU (Analytical role, unclassified); **ANST (Analytical study)**
(.alpha.-amylase detn. at 37.degree.C by spectrometry using 2-chloro-4-nitrophenyl-.alpha.-D-maltotrioside)

RE.CNT 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 6 OF 36 CA COPYRIGHT 2003 ACS
AN 132:276243 CA
TI VIII Clinical Chemistry (urine) External Quality Assessment Programme of the Spanish Society of Clinical Biochemistry and Molecular Pathology (1998)
AU Ramon, F.; Alsina, M. J.; Alvarez, V.; Cava, F.; Cortes, M.; Hernandez, A.; Jimenez, C. V.; Larios, J. V.; Minchinela, J.; Navarro, J. M.; Perich, C.; Ricos, C.; Salas, A.; Simon, M.
CS Hospital Universitari Sant Joan de Deu, Servei de Bioquimica, Barcelona, 08950, Spain
SO Revista de la Sociedad Espanola de Bioquimica Clinica y Patologia Molecular (1999), 18(4), 231-249
CODEN: RSQCFW; ISSN: 1139-2436
PB Ediciones Mayo S.A.
DT Journal
LA Spanish
AB The process of nationwide quality control in Spanish clin. med. labs. is described and results from the 1998 annual evaluation are presented. Data on the urine anal. of Ca, Cl-, creatinine, glucose, phosphate, K+, Na+, protein, urates, .alpha.-amylase, urea, pH, blood cells, and nitrites are presented.
CC 9-16 (Biochemical Methods)
ST urine analysis quality control biochem index Spain
IT Quality control
Urine analysis
(urine anal. quality control in Spain in 1998)

IT Proteins, general, analysis
RL: ANT (Analyte); **ANST (Analytical study)**
(urine anal. quality control in Spain in 1998)

IT 50-99-7, D-Glucose, analysis 57-13-6, Urea, analysis 60-27-5, Creatinine 69-93-2, Uric acid, analysis 7440-09-7, Potassium, analysis 7440-23-5, Sodium, analysis 7440-70-2, Calcium, analysis **9000-90-2**, .alpha. Amylase 14265-44-2, Phosphate, analysis 14797-65-0, Nitrite, analysis **16887-00-6**, Chloride, analysis
RL: ANT (Analyte); **ANST (Analytical study)**
(urine anal. quality control in Spain in 1998)

RE.CNT 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 8 OF 36 CA COPYRIGHT 2003 ACS
AN 131:254653 CA
TI Reagent compositions for assaying electrolytes
IN Kimata, Shinsuke; Asano, Shigeki; Kawamura, Yoshihisa
PA Toyo Boseki K. K., Japan
SO PCT Int. Appl., 28 pp.
CODEN: PIXXD2

DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9950444	A1	19991007	WO 1999-JP1209	19990311
	W: US				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	JP 11276199	A2	19991012	JP 1998-86074	19980331
	JP 3087891	B2	20000911		
	EP 989189	A1	20000329	EP 1999-907916	19990311
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
	US 6420129	B1	20020716	US 1999-424809	19991129
PRAI	JP 1998-86074	A	19980331		
	WO 1999-JP1209	W	19990311		

AB Reagent compns. excellent in quant. characteristics for enzymically assaying electrolytes (e.g., calcium ion, chloride ion) are provided so that they withstand as liq. reagents during distribution with a high soln. stability. These compns. includes: (a) inactive form of .alpha.-amylase; (b) a chelating agent; (c) a substrate for .alpha.-amylase; (d) a cyclodextrin deriv.; (e) optionally, a SH-group contg. compd. or its salt. A significantly higher long-term stability of .alpha.-amylase was obtained by adding a branched-cyclodextrin deriv. (e.g., glucosyl-.alpha.-cyclodextrin, maltosyl-.alpha.-cyclodextrin, glucosyl-.beta.-cyclodextrin, maltosyl-.beta.-cyclodextrin, glucosyl-.gamma.-cyclodextrin, maltosyl-.gamma.-cyclodextrin, methyl-.beta.-cyclodextrin, carboxymethyl-.beta.-cyclodextrin, triacetyl-.beta.-cyclodextrin, hydroxyethyl-.beta.-cyclodextrin, hydroxypropyl-.beta.-cyclodextrin) and a SH-group contg. compd. (e.g., N-acetylcystein, reduced glutathione) in comparison with other compds. such as .alpha.-cyclodextrin, .beta.-cyclodextrin, .gamma.-cyclodextrin, glucose, maltose, or maltotriose.

IC ICM C12Q001-40
ICS G01N033-84
CC 9-2 (Biochemical Methods)
Section cross-reference(s): 7
ST reagent electrolyte assay amylase stability cyclodextrin
IT Sulfhydryl group
(compd. contg.; reagent compns. for assaying electrolytes)
IT Analysis
(enzymic anal.; reagent compns. for assaying electrolytes)
IT Chelating agents
Electrolytes, biological
Stability
(reagent compns. for assaying electrolytes)
IT Reagents
RL: ARG (Analytical reagent use); **ANST (Analytical study)**; USES (Uses)
(reagent compns. for assaying electrolytes)
IT 14127-61-8, analysis **16887-00-6**, Chloride, analysis
RL: ANT (Analyte); **ANST (Analytical study)**
(reagent compns. for assaying electrolytes)
IT 157381-11-8
RL: ARG (Analytical reagent use); **ANST (Analytical study)**; USES (Uses)
(reagent compns. for assaying electrolytes)
IT **9000-90-2**, Amylase, .alpha.-
RL: ARG (Analytical reagent use); BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); **ANST (Analytical study)**; BIOL (Biological study); USES (Uses)
(reagent compns. for assaying electrolytes)
IT 50-99-7, D-Glucose, analysis 69-79-4, Maltose 70-18-8, Reduced

glutathione, analysis 616-91-1, N-Acetyl-L-cysteine 1109-28-0, Maltotriose 7585-39-9, .beta.-Cyclodextrin 7585-39-9D, .beta.-Cyclodextrin, alkyl derivs. 10016-20-3, .alpha.-Cyclodextrin 10058-19-2, Glucosyl-.alpha.-cyclodextrin 17465-86-0, .gamma.-Cyclodextrin 92517-02-7 100817-30-9, Maltosyl-.alpha.-cyclodextrin 104723-60-6, Maltosyl-.beta.-cyclodextrin 104723-63-9, Glucosyl-.gamma.-cyclodextrin 104723-64-0, Maltosyl-.gamma.-cyclodextrin 188988-30-9
RL: ARU (Analytical role, unclassified); **ANST (Analytical study)**
(reagent compns. for assaying electrolytes)
RE.CNT 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 9 OF 36 CA COPYRIGHT 2003 ACS
AN 131:254652 CA
TI Reagent constituents for measuring chloride ion by enzymic analysis
IN Kimata, Shinsuke; Asano, Shigeki; Kawamura, Yoshihisa
PA Toyobo Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 11266898	A2	19991005	JP 1998-77677	19980325
PRAI JP 1998-77677		19980325		

OS MARPAT 131:254652
AB Reagent constituents are provided for accurately measuring chloride ion with an adequate sensitivity by enzymic anal. without using coupled enzymes. The reagent contains (a) inactive-type .alpha.-amylase, (b) a chelating agent, and (c) a maltooligosaccharide deriv. as a substrate, I (R1 and R2= .beta.-galactopyranosyl group or H; R3= 2-chloro-4-nitrophenol group; n= 0-2). A significantly higher sensitivity was obtained in measuring chloride ion by using 2-chloro-4-nitrophenyl-4-O-.beta.-D-galactopyranosyl-.alpha.-maltoside or 2-chloro-4-nitrophenyl-.alpha.-maltotrioside as a substrate in comparison with 4-nitrophenyl-.alpha.-maltotrioside.
IC ICM C12Q001-40
ICS G01N033-84
CC 9-2 (Biochemical Methods)
Section cross-reference(s): 7
ST chloride enzymic analysis reagent amylase maltooligosaccharide
IT Maltooligosaccharides
RL: ARG (Analytical reagent use); ARU (Analytical role, unclassified); **ANST (Analytical study)**; USES (Uses)
(deriv.; reagent constituents for measuring chloride ion by enzymic anal.)
IT Analysis
(enzymic anal.; reagent constituents for measuring chloride ion by enzymic anal.)
IT Blood analysis
Chelating agents
Urine analysis
(reagent constituents for measuring chloride ion by enzymic anal.)
IT Reagents
RL: ARG (Analytical reagent use); **ANST (Analytical study)**; USES (Uses)
(reagent constituents for measuring chloride ion by enzymic anal.)
IT **9000-90-2**, Amylase, .alpha.-
RL: ARG (Analytical reagent use); **ANST (Analytical study)**; USES (Uses)
(inactive-type; reagent constituents for measuring chloride ion by enzymic anal.)

IT **16887-00-6**, Chloride, analysis
RL: ANT (Analyte); **ANST (Analytical study)**
(reagent constituents for measuring chloride ion by enzymic anal.)
IT 118291-90-0, 2-Chloro-4-nitrophenyl-.alpha.-maltotrioside 157381-11-8
RL: ARG (Analytical reagent use); **ANST (Analytical study)**; USES (Uses)
(reagent constituents for measuring chloride ion by enzymic anal.)
IT 60-00-4, EDTA, analysis 69-79-4, Maltose 1109-28-0D, Maltotriose, derivs. 10016-20-3, .alpha.-Cyclodextrin
RL: ARU (Analytical role, unclassified); **ANST (Analytical study)**
(reagent constituents for measuring chloride ion by enzymic anal.)

L24 ANSWER 13 OF 36 CA COPYRIGHT 2003 ACS
AN 126:183329 CA
TI Enzymic determination of the chloride ion concentration using 3-ketobutylidene .beta.-2-chloro-4-nitrophenylmaltopentaoside (3KB-.beta.CNPG5)
AU Majima, Keiichi; Teshima, Shinichi; Mizuguchi, Katsuhiko; Kikuchi, Toshiro; Kawamura, Yoshihisa
CS Tsuruga Inst. Biotechnol., Toyobo Co., Ltd., Tsuruga, 914, Japan
SO Rinsho Kagaku (Nippon Rinsho Kagakkai) (1996), 25(4), 223-228
CODEN: RIKAAN; ISSN: 0370-5633
PB Nippon Rinsho Kagakkai
DT Journal
LA English
AB 3-Ketobutylidene .beta.-2-chloro-4-nitrophenylmaltopentaoside (3KB-.beta.CNPG5) was used for the detn. of the chloride ion concn. in serum and urine. This enzymic assay for the chloride ion, which is based on the detn. of .alpha.-amylase using 3KB-.beta.CNPG5, has a wide dynamic range (0-400 mmol/L) and is less affected by other endogenous anions in biol. fluids than other methods. This method is highly sensitive and stable for detg. the chloride-ion concn. and can be applied to undiluted samples of sera and urine.
CC 9-2 (Biochemical Methods)
ST chloride detn serum urine amylase substrate; chloronitrophenylmaltopentaoside amylase substrate chloride detn; maltopentaoside deriv amylase substrate chloride detn
IT Blood analysis
Enzyme kinetics
Michaelis constant
Urine analysis
(enzymic detn. of chloride ion concn. based on detn. of .alpha.-amylase using 3-ketobutylidene .beta.-2-chloro-4-nitrophenylmaltopentaoside)
IT **9000-90-2**, .alpha.-Amylase **16887-00-6**, Chloride, analysis
RL: ANT (Analyte); **ANST (Analytical study)**
(enzymic detn. of chloride ion concn. based on detn. of .alpha.-amylase using 3-ketobutylidene .beta.-2-chloro-4-nitrophenylmaltopentaoside)
IT 9001-22-3, .beta.-Glucosidase 9001-42-7, .alpha.-Glucosidase 136345-76-1
RL: ARG (Analytical reagent use); **ANST (Analytical study)**; USES (Uses)
(enzymic detn. of chloride ion concn. based on detn. of .alpha.-amylase using 3-ketobutylidene .beta.-2-chloro-4-nitrophenylmaltopentaoside)

L24 ANSWER 15 OF 36 CA COPYRIGHT 2003 ACS
AN 124:225390 CA
TI Enzymic determination of sodium and chloride in sweat
AU Taylor, Richard P.; James, Timothy J.
CS Department Clinical Biochemistry, John Radcliffe Hospital, Headington/Oxford, OX3 9DU, UK
SO Clinical Biochemistry (1996), 29(1), 33-9
CODEN: CLBIAS; ISSN: 0009-9120
PB Elsevier

DT Journal
LA English
AB Objective:. To develop methods based on enzyme activation for the anal. of sweat sodium and chloride using .beta.-galactosidase and .alpha.-amylase, resp. Methods:. Both were monitored kinetically on the Cobas Fara centrifugal analyzer. The sweat, collected with the MacroductTM system, was dild. no more than five-fold for the vols. obtained of 16 to 80 .mu.L, median 32.5 .mu.L. The sodium assay utilized a sodium-binding cryptand to maximize linearity. Results:. Between-run coeffs. of variation (%) at 10, 20, and 50 mmol/L were 3.6, 4.5, and 1.3 for sodium and 7.1, 6.1, and 6.0 for chloride, resp. The sodium method showed excellent agreement with flame photometry (y = 0.997x + 0.742; r = 0.998), and chloride with a mercuric thiocyanate method (y = 0.995x + 0.485; r = 0.996), giving equiv. discrimination between patients with and without cystic fibrosis. Conclusions:. The methods enable the rapid anal. on the same analyzer of both sodium and chloride in a single diln. of sweat collections of low vol.
CC 9-2 (Biochemical Methods)
ST enzymic detn sodium chloride sweat
IT Cystic fibrosis
Perspiration
(enzymic detn. of sodium and chloride in sweat)
IT 7440-23-5, Sodium, analysis **16887-00-6**, Chloride, analysis
RL: ANT (Analyte); **ANST (Analytical study)**
(enzymic detn. of sodium and chloride in sweat)
IT **9000-90-2**, .alpha.-Amylase 9031-11-2, .beta.-Galactosidase
RL: ARG (Analytical reagent use); **ANST (Analytical study)**; USES (Uses)
(enzymic detn. of sodium and chloride in sweat)

L24 ANSWER 16 OF 36 CA COPYRIGHT 2003 ACS
AN 124:4483 CA
TI Chloride quantification using .alpha.-amylase and amylase substrate
IN Sueshige, Fumiko; Miike, Akira; Nakamura, Nobuyuki; Ogawa, Koichi
PA Kyowa Medex Co Ltd, Japan; Japan Maize Prod
SO Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 07246098	A2	19950926	JP 1994-38842	19940309
PRAI	JP 1994-38842		19940309		

OS MARPAT 124:4483
AB The disclosed method is based on the recovery of activity of .alpha.-amylase, that is inactive in the presence of chelating agent, by the addn. of chloride. The MARKUSH of substrate used for amylase is shown. In example, reagent 1 contg. .alpha.-glucosidase, Gal-G5-PNP (i.e. p-nitrophenyl .beta.-D-galactosyl-.alpha.-maltopentaoside, as substrate), NADP, sucrose phosphorylase, .alpha.-phosphoglucomutase and calcium acetate, and reagent 2 contg. .alpha.-amylase, glucose-1,6-diphosphate, glucose-6-phosphate dehydrogenase, magnesium sulfate, calcium phosphate and calcium acetate were used for quantification of sodium chloride.
IC ICM C12Q001-40
CC 9-2 (Biochemical Methods)
ST amylase substrate chloride detn
IT 7647-14-5, Sodium chloride, analysis **16887-00-6**, Chloride, analysis
RL: ANT (Analyte); **ANST (Analytical study)**
(.alpha.-amylase and .alpha.-amylase substrate for quantification of chloride)
IT **9000-90-2**, .alpha.-Amylase 171411-15-7 171411-16-8
171411-17-9 171411-18-0 171411-19-1

RL: ARG (Analytical reagent use); **ANST (Analytical study)**; USES (Uses)
(.alpha.-amylase and .alpha.-amylase substrate for quantification of chloride)

L24 ANSWER 17 OF 36 CA COPYRIGHT 2003 ACS
AN 124:4164 CA
TI Initial results obtained with the new analyzer Ilab 900 for use in clinical chemistry
AU Zogbaum, Martina; Ziems, Joerg; Meissner, Dieter
CS Inst. Klin. Chem. Laboratoriumsmed., Staedtisches Klin. Dresden, Dresden, D-01067, Germany
SO Laboratoriumsmedizin (1995), 19(6), 265-71
CODEN: LABOD3; ISSN: 0342-3026
PB Blackwell
DT Journal
LA German
AB The analyzer Ilab 900 is a newly developed, computer-assisted automatic analyzer with a high rate of sample anal. (.apprx.600 samples/h). In the first phase of evaluation of the Ilab 900, the following parameters were selected: ALAT, amylase, CK, cholesterol, GGT, glucose, uric acid, urea, total protein, triglycerides, Na+, K+, and Cl-. It was demonstrated that precision and accuracy of the Ilab 900 meet all requirements of a clin. lab. Linearity tests confirmed the measuring ranges stated for 8 selected methods. The 13 parameters were compared in parallel measurement series using 3 analyzers: Ilab 900, Monarch 2000, and Ektachem 700. A comparison of methods showed that the results are comparable and that relative accuracy is given.
CC 9-1 (Biochemical Methods)
Section cross-reference(s): 14
ST blood analyzer Ilab 900 clin analysis; computer assisted Ilab 900 clin analyzer
IT Blood analysis
(clin. analyzer Ilab 900 evaluation)
IT Glycerides, analysis
Proteins, analysis
RL: ANT (Analyte); THU (Therapeutic use); **ANST (Analytical study)**; BIOL (Biological study); USES (Uses)
(clin. analyzer Ilab 900 evaluation)
IT 50-99-7, Glucose, analysis 57-13-6, Urea, analysis 57-88-5, Cholesterol, analysis 69-93-2, Uric acid, analysis 7440-09-7, Potassium, analysis 7440-23-5, Sodium, analysis 9000-86-6 **9000-90-2**, .alpha.-Amylase 9001-15-4, Creatine kinase 9046-27-9, .gamma.-Glutamyltransferase **16887-00-6**, Chloride, analysis
RL: ANT (Analyte); THU (Therapeutic use); **ANST (Analytical study)**; BIOL (Biological study); USES (Uses)
(clin. analyzer Ilab 900 evaluation)

L24 ANSWER 18 OF 36 CA COPYRIGHT 2003 ACS
AN 123:334363 CA
TI Determination of ions in fluids
IN Berry, Michael Nathanial; Town, Michael Harold; Kresse, Georg-Burkhard; Herrmann, Uwe
PA University of South Australia, Australia; Boehringer Mannheim GmbH
SO Pat. Specif. (Aust.), 44 pp.
CODEN: ALXXAP
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	AU 662515	B2	19950907	AU 1992-13120	19920324
	AU 9213120	A1	19920618		

PRAI AU 1992-13120 19920324
AB Process for the detn. of calcium ions in fluids(such as blood, urine), wherein the influence of these ions on the activity of an enzyme which is a hydrolase is measured, and wherein (i) where the concn. of calcium ions in the fluid is greater than the optimal range for the enzyme, the affinity of the enzyme to the calcium ions is decreased by the presence of a competitive inhibitor ion which decreases the sensitivity of the enzyme to the calcium ions and/or a selective binding agent is added for reducing the free concn. of the calcium ions to within the optimal range of the enzyme; and/or (ii) where the competitive interfering ions are present in the fluid, a selective binding agent is added for reducing the free concn. of the competitive interfering ions to levels where interference is no longer significant.
IC ICM C12Q001-00
ICS C12Q001-34
CC 9-16 (Biochemical Methods)
ST biol fluid calcium ion detn enzyme
IT Blood analysis
Body fluid
Cerebrospinal fluid
Lymph
Perspiration
Urine analysis
(detn. of ions in fluids)
IT Enzymes
RL: ARG (Analytical reagent use); **ANST (Analytical study)**; USES (Uses)
(detn. of ions in fluids)
IT Crown compounds
RL: ARU (Analytical role, unclassified); **ANST (Analytical study)**
(detn. of ions in fluids)
IT Cryptands
RL: ARU (Analytical role, unclassified); **ANST (Analytical study)**
(detn. of ions in fluids)
IT Podands
RL: ARU (Analytical role, unclassified); **ANST (Analytical study)**
(detn. of ions in fluids)
IT Crown compounds
RL: ARU (Analytical role, unclassified); **ANST (Analytical study)**
(cryptands, detn. of ions in fluids)
IT Crown compounds
RL: ARU (Analytical role, unclassified); **ANST (Analytical study)**
(ethers, detn. of ions in fluids)
IT Ligands
RL: ARU (Analytical role, unclassified); **ANST (Analytical study)**
(hemispherands, detn. of ions in fluids)
IT Cyclophanes
RL: ARU (Analytical role, unclassified); **ANST (Analytical study)**
(meta-, detn. of ions in fluids)
IT Ligands
RL: ARU (Analytical role, unclassified); **ANST (Analytical study)**
(spherands, detn. of ions in fluids)
IT 7732-18-5, Water, analysis
RL: AMX (Analytical matrix); **ANST (Analytical study)**
(detn. of ions in fluids)
IT 7440-09-7, Potassium, analysis 7440-23-5, Sodium, analysis 7440-70-2, Calcium, analysis **16887-00-6**, Chloride, analysis
RL: ANT (Analyte); **ANST (Analytical study)**
(detn. of ions in fluids)
IT **9000-90-2**, .alpha.-Amylase 9001-12-1, Collagenase 9001-59-6, Pyruvate kinase 9027-41-2, Hydrolase 9031-11-2 9032-68-2, Cathepsin C 9032-92-2, Glycosidase 78990-62-2, Calpain
RL: ARG (Analytical reagent use); **ANST (Analytical study)**; USES (Uses)

(detn. of ions in fluids)
IT 60-00-4, Edta, analysis 7439-95-4, Magnesium, analysis
RL: ARU (Analytical role, unclassified); **ANST (Analytical study)**
(detn. of ions in fluids)

L24 ANSWER 19 OF 36 CA COPYRIGHT 2003 ACS
AN 123:107243 CA
TI Determination of ions in fluids
IN Berry, Michael Nathanial; Town, Michael Harold; Kresse, Georg-Burkhard; Herrmann, Uwe
PA Flinders University of South Australia, Australia; Boehringer Mannheim GmbH
SO Pat. Specif. (Aust.), 45 pp.
CODEN: ALXXAP
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI AU 657735	B2	19950323	AU 1992-13115	19920324
AU 9213115	A1	19920910		
PRAI AU 1992-13115		19920324		

AB A process is disclosed for the detn. of ions in biol. fluids, e.g., blood, urine, cerebrospinal fluid, and nonbiol. fluids, e.g., water, wherein the influence of these ions on the activity of an enzyme is measured, and wherein binding agents are present which form a complex with indicator ions and from which the indicator ions are displaced stoichiometrically by the ion to be detd. and wherein the influence of the displaced indicator ions on the activity of the enzyme is assayed, thereby giving indirect measure of the concn. of the ion to be detd.
IC ICM G01N033-84
ICS C12Q001-00; C12Q001-25; C12Q001-26; C12Q001-34; C12Q001-48; C12Q001-527; C12Q001-40; C12Q001-37; C12Q001-32; C12Q001-42
CC 9-2 (Biochemical Methods)
Section cross-reference(s): 4, 7, 79
ST body fluid ion electrolyte detn enzyme; water metal ion detn enzyme; binding agent ion detn body fluid
IT Anions
Blood analysis
Body fluid
Cations
Cerebrospinal fluid
Chelating agents
Electrolytes
Intestinal juice
Ionophores
Lymph
Perspiration
Urine analysis
(detn. of ions in fluids with enzymes and binding agents)
IT Crown compounds
Cryptands
Enzymes
Peptides, uses
Podands
RL: ARG (Analytical reagent use); **ANST (Analytical study)**; USES (Uses)
(detn. of ions in fluids with enzymes and binding agents)
IT Crown compounds
RL: ARG (Analytical reagent use); **ANST (Analytical study)**; USES (Uses)
(cryptands, detn. of ions in fluids with enzymes and binding agents)
IT Crown compounds
RL: ARG (Analytical reagent use); **ANST (Analytical study)**; USES

(Uses)
(ethers, detn. of ions in fluids with enzymes and binding agents)
IT Trace elements, analysis
RL: ANT (Analyte); **ANST (Analytical study)**
(heavy metals, detn. of ions in fluids with enzymes and binding agents)
IT Ligands
RL: ARG (Analytical reagent use); **ANST (Analytical study)**; USES
(Uses)
(hemispherands, detn. of ions in fluids with enzymes and binding agents)
IT Cyclophanes
RL: ARG (Analytical reagent use); **ANST (Analytical study)**; USES
(Uses)
(meta-, detn. of ions in fluids with enzymes and binding agents)
IT Ligands
RL: ARG (Analytical reagent use); **ANST (Analytical study)**; USES
(Uses)
(spherands, detn. of ions in fluids with enzymes and binding agents)
IT 78990-62-2, Calpain
RL: ARG (Analytical reagent use); **ANST (Analytical study)**; USES
(Uses)
(I and II; detn. of ions in fluids with enzymes and binding agents)
IT 7732-18-5, Water, analysis
RL: AMX (Analytical matrix); **ANST (Analytical study)**
(detn. of ions in fluids with enzymes and binding agents)
IT 71-52-3, Bicarbonate 7439-89-6, Iron, analysis 7439-92-1, Lead, analysis 7439-93-2, Lithium, analysis 7439-95-4, Magnesium, analysis 7439-96-5, Manganese, analysis 7440-09-7, Potassium, analysis 7440-23-5, Sodium, analysis 7440-50-8, Copper, analysis 7440-66-6, Zinc, analysis 7440-70-2, Calcium, analysis 12408-02-5, Hydrogen ion, analysis 14798-03-9, Ammonium, analysis **16887-00-6**, Chloride, analysis
RL: ANT (Analyte); **ANST (Analytical study)**
(detn. of ions in fluids with enzymes and binding agents)
IT 64-02-8, Complexone 66-72-8, Pyridoxal **9000-90-2**, .alpha.-Amylase 9000-92-4, Amylase 9001-03-0, Carbonic anhydrase 9001-12-1, Collagenase 9001-51-8, Hexokinase 9001-59-6, Pyruvate kinase 9002-10-2, Tyrosinase 9013-02-9, Adenylate kinase 9024-52-6, Aldolase 9025-35-8, .alpha.-D-Galactosidase 9025-76-7, Phospho glycolate phosphatase 9026-42-0, Pyridoxal kinase 9027-41-2, Hydrolase 9027-42-3, Acetate kinase 9028-14-2, Glycerol dehydrogenase 9031-11-2 9032-68-2, Cathepsin C 9032-92-2, Glycosidase 9047-61-4, Transferase 9055-04-3, Lyase 9055-15-6, Oxidoreductase 11075-17-5, Carboxypeptidase A 31364-42-8, Kryptofix 221 37353-37-0, Acetaldehyde dehydrogenase
RL: ARG (Analytical reagent use); **ANST (Analytical study)**; USES
(Uses)
(detn. of ions in fluids with enzymes and binding agents)

L24 ANSWER 20 OF 36 CA COPYRIGHT 2003 ACS
AN 122:209220 CA
TI Method of determining chloride ion
IN Tadano, Toshio; Kayahara, Norihiko; Umemoto, Jun
PA Kyowa Medex Co., Ltd., Japan
SO PCT Int. Appl., 15 pp.
CODEN: PIXXD2
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9504831	A1	19950216	WO 1994-JP1279	19940803

PI WO 9504831 A1 19950216 WO 1994-JP1279 19940803
W: US
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE

JP 07039397 A2 19950210 JP 1993-193728 19930804
EP 712937 A1 19960522 EP 1994-923062 19940803
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE
US 5962248 A 19991005 US 1996-586785 19960123
PRAI JP 1993-193728 19930804
WO 1994-JP1279 19940803

AB A method of detg. chloride ions contained in a specimen in an aq. medium by using an .alpha.-amylase deactivated by a chelating agent, which comprises adding ATP and an enzyme having a glucokinase activity to a specimen to eliminate glucose contained therein, deactivating the enzyme, and measuring the quantity of glucose formed by the reaction of an .alpha.-amylase activated by chloride ions by using an oligosaccharide as the substrate. This method is useful as a clin. examn. method, is not affected by glucose and maltose also present in the specimen, and has a high accuracy.

IC ICM C12Q001-54
ICS C12Q001-48; C12Q001-40

CC 9-2 (Biochemical Methods)

ST detg chloride

IT Oligosaccharides
RL: ARG (Analytical reagent use); **ANST (Analytical study)**; USES (Uses)
(method of detg. chloride ion)

IT **16887-00-6**, Chloride, analysis
RL: ANT (Analyte); **ANST (Analytical study)**
(method of detg. chloride ion)

IT 56-65-5, 5'-ATP, uses **9000-90-2**, .alpha.-Amylase 9001-36-9, Glucokinase
RL: ARG (Analytical reagent use); **ANST (Analytical study)**; USES (Uses)
(method of detg. chloride ion)

IT 50-99-7, D Glucose, analysis 69-79-4, Maltose
RL: ARU (Analytical role, unclassified); **ANST (Analytical study)**
(method of detg. chloride ion)

L24 ANSWER 22 OF 36 CA COPYRIGHT 2003 ACS
AN 121:200389 CA
TI Enzymic determination of ions in body fluids
IN Berry, Michael Nathanial; Town, Michael Harold; Kresse, Georg-Burkhard; Herrmann, Uwe
PA Flinders University of South Australia, Australia; Boehringer Mannheim GmbH
SO Pat. Specif. (Aust.), 49 pp.
CODEN: ALXXAP
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
AU 651712	B2	19940728	AU 1992-20601	19920728
AU 9220601	A1	19921001		

PRAI AU 1992-20601 19920728

AB A process and a reagent are described for the detn. of ions in fluids such as body fluids, wherein the influence of these ions on the activity of an enzyme is measured. The ions are e.g. Na, K, Ca, Mg, Mn, Li, Pb, Zn, Cu, Fe, or other heavy metal ions or nonmetallic ions comprising Cl-, HCO3-, H+, or NH4+. The enzyme may be e.g. a transferase, hydrolase, oxidoreductase, or lyase. An essential part of the invention is a method to exclude interferences by ions by (1) masking the interfering ions with a binding agent and (2) choice of optimal reaction conditions, including selection of an appropriate isoenzyme, such that the effects of the analyte are substantially greater than those of the interfering ions. Thus, K+ was detd. in serum or plasma in the presence of Na+ by use of Kryptofix 221 as Na+-binding agent, pyruvate kinase from Bacillus

stearothermophilus as enzyme with a high sensitivity to K+ relative to Na+, and Li+ as competing ion which competes with Na+ more effectively than with K+, thereby increasing the sensitivity of the enzyme to K+ relative to Na+ to 100:1.

IC ICM C12Q001-527
ICS C12Q001-40; C12Q001-37; C12Q001-48; C12Q001-34

CC 9-2 (Biochemical Methods)

ST electrolyte enzymic detn body fluid

IT Blood analysis
Body fluid
Cerebrospinal fluid
Chelating agents
Electrolytes, biological
Exudate
Ionophores
Lymph
Perspiration
Transudate
Urine analysis
(enzymic detn. of ions in body fluids)

IT Complexons
Crown compounds
Cryptands
Podands
RL: ARG (Analytical reagent use); **ANST (Analytical study)**; USES (Uses)
(enzymic detn. of ions in body fluids)

IT Bacillus stearothermophilus
Muscle
(pyruvate kinase of; enzymic detn. of ions in body fluids)

IT Intestine
(secretion; enzymic detn. of ions in body fluids)

IT Crown compounds
RL: ARG (Analytical reagent use); **ANST (Analytical study)**; USES (Uses)
(cryptands, enzymic detn. of ions in body fluids)

IT Peptides, uses
RL: ARG (Analytical reagent use); **ANST (Analytical study)**; USES (Uses)
(cyclo-, enzymic detn. of ions in body fluids)

IT Crown compounds
RL: ARG (Analytical reagent use); **ANST (Analytical study)**; USES (Uses)
(ethers, enzymic detn. of ions in body fluids)

IT Ligands
RL: ARG (Analytical reagent use); **ANST (Analytical study)**; USES (Uses)
(hemispherands, enzymic detn. of ions in body fluids)

IT Cyclophanes
RL: ARG (Analytical reagent use); **ANST (Analytical study)**; USES (Uses)
(meta-, enzymic detn. of ions in body fluids)

IT Ligands
RL: ARG (Analytical reagent use); **ANST (Analytical study)**; USES (Uses)
(spherands, enzymic detn. of ions in body fluids)

IT 78990-62-2, Calpain
RL: ARG (Analytical reagent use); **ANST (Analytical study)**; USES (Uses)
(I; enzymic detn. of ions in body fluids)

IT 7439-93-2, Lithium, uses 7447-41-8, Lithium chloride, uses
RL: ARG (Analytical reagent use); **ANST (Analytical study)**; USES (Uses)
(competitive inhibitor; enzymic detn. of ions in body fluids)

IT 7732-18-5, Water, analysis
RL: AMX (Analytical matrix); **ANST (Analytical study)**
(enzymic detn. of ions in)
IT 71-52-3, Bicarbonate 7440-09-7, Potassium, analysis 7440-23-5, Sodium, analysis 7440-70-2, Calcium, analysis **16887-00-6**, Chloride, analysis
RL: ANT (Analyte); **ANST (Analytical study)**
(enzymic detn. of ions in body fluids)
IT **9000-90-2**, .alpha.-Amylase 9001-03-0, Carbonic anhydrase 9024-00-4, Tryptophanase 9024-52-6, Aldolase 9025-35-8, .alpha.-D-Galactosidase 9027-41-2, Hydrolase 9031-11-2, .beta.-D-Galactosidase 9031-96-3, Peptidase 9032-68-2, Cathepsin C 9032-92-2, Glycosidase 9055-04-3, Lyase 23978-09-8, Kryptofix 222 31364-42-8, Kryptofix 221 122460-10-0
RL: ARG (Analytical reagent use); **ANST (Analytical study)**; USES (Uses)
(enzymic detn. of ions in body fluids)
IT 9001-59-6, Pyruvate kinase
RL: ARG (Analytical reagent use); **ANST (Analytical study)**; USES (Uses)
(of Bacillus stearothermophilus; enzymic detn. of ions in body fluids)

L24 ANSWER 23 OF 36 CA COPYRIGHT 2003 ACS
AN 119:134660 CA
TI Performance of enzymic reagents for sodium, potassium and chloride determination in serum
AU Ehrhardt, V.; Poppe, W.; Jansen, H.; Kerscher, L.; Town, M.
CS Boehringer Mannheim GmbH, Mannheim, D-6800/31, Germany
SO International Congress Series (1992), 991(Progress in Clinical Biochemistry), 191-2
CODEN: EXMDA4; ISSN: 0531-5131
DT Journal
LA English
AB The authors report the results of the evaluation of three recently developed enzymic methods for the detn. of serum Na+, K+ and Cl-, as performed on Boehringer Mannheim/Hitch 704, 737 and 717 analyzers at 37.degree.C and using routine flame photometry and coulometry as comparison methods. The Na assay is based on the activation of .beta.-galactosidase by Na+ and the rate of formation of o-nitrophenol (ONP) from ONP-galactoside is measured. The K assay is based on the activation of pyruvate kinase by K+ resulting in the conversion of phosphoenolpyruvate to pyruvate. The NADH consumed by the redn. of pyruvate to lactate is monitored kinetically. The Cl assay relies on the activation of mammalian .alpha.-amylase by Cl- which, in cooperation with .alpha.- and .beta.-glucosidase, results in the formation of Cl-ONP from 2-chloro-4-nitrophenyl-.beta.-D-maltoheptaoside.
CC 9-2 (Biochemical Methods)
Section cross-reference(s): 13, 79
ST blood sodium potassium chloride detn enzymic
IT Blood analysis
(sodium and potassium and chloride detn. in, in human, enzymic method for)
IT 7440-09-7, Potassium, analysis 7440-23-5, Sodium, analysis **16887-00-6**, Chloride, analysis
RL: ANT (Analyte); **ANST (Analytical study)**
(detn. of, in human blood, enzymic method for)
IT **9000-90-2**, .alpha.-Amylase
RL: **ANST (Analytical study)**
(in chloride detn. in human blood)
IT 9001-59-6, Pyruvate kinase
RL: **ANST (Analytical study)**
(in potassium detn. in human blood)
IT 9031-11-2, .beta.-Galactosidase
RL: **ANST (Analytical study)**

(in sodium detn. in human blood)

L24 ANSWER 24 OF 36 CA COPYRIGHT 2003 ACS
AN 116:55098 CA
TI Reagent compositions for enzymic-spectrometric determination of chloride ion in serum
IN Mizuguchi, Katsuhiko; Tejima, Shinichi; Hanyu, Tsuneo
PA Toyobo Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 9 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 03176000	A2	19910731	JP 1990-194282	19900723
	JP 2990753	B2	19991213		
	US 5470715	A	19951128	US 1994-176707	19940103
PRAI	JP 1989-244343		19890919		
	JP 1990-194282		19900723		
	JP 1990-212933		19900810		
	US 1991-733449		19910722		

AB The title reagent compn. consists of maltooligosaccharide derivs. having (un)modified nonreducing and modified reducing terminals, metal chelators, .alpha.-amylase, and .alpha.-glucosidase, .beta.-glucosidase and/or glucoamylase. The reagent compn. has a lowered blank value and the method is simple and dets. a wide range of Cl- concns. Thus, Cl- in serum was treated with reagent 1 contg. pH 7.0 phosphate buffer, EDTA, .alpha.-amylase, .alpha.-glucosidase, and .beta.-glucosidase at 37.degree. for 5 min and then with reagent 2 contg. pH 7.0 phosphate buffer, EDTA and 2-chloro-4-nitrophenyl-.beta.-D-maltoheptaoside. The reaction mixt. was measured at 400 nm for Cl- detn.
IC ICM C12Q001-40
ICS C12Q001-34
CC 9-5 (Biochemical Methods)
ST chloride enzymic spectrometric detn serum
IT Blood analysis
(chloride ion enzymic spectrometric detn. in)
IT Chelating agents
(chloride ion enzymic-spectrometric detn. in serum with reagent contg.)
IT Oligosaccharides
RL: **ANST (Analytical study)**
(maltose-contg., chloride ion enzymic-spectrometric detn. in serum with reagent contg.)
IT 74173-31-2, 4-Nitrophenyl-.alpha.-D-maltoheptaoside 90826-64-5, 2-Chloro-4-nitrophenyl-.beta.-D-maltoheptaoside 99304-80-0 136345-76-1 138453-28-8 60-00-4, EDTA, uses 62-33-9, Calcium EDTA **9000-90-2**, .alpha.-Amylase 9001-22-3, .beta.-Glucosidase 9001-42-7, .alpha.-Glucosidase 9032-08-0, Glucoamylase
RL: **ANST (Analytical study)**
(chloride ion enzymic-spectrometric detn. in serum with reagent contg.)
IT **16887-00-6**, Chloride, analysis
RL: ANT (Analyte); **ANST (Analytical study)**
(detn. of, in serum, enzymic-spectrometric)

L24 ANSWER 27 OF 36 CA COPYRIGHT 2003 ACS
AN 112:154836 CA
TI Method and kit for chloride determination by activation of amylase
IN Takase, Junko; Mitsumaki, Hiroshi; Takahata, Fujiya
PA Hitachi, Ltd., Japan
SO Ger. Offen., 9 pp.
CODEN: GWXXBX
DT Patent
LA German

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 3900755	A1	19890727	DE 1989-3900755	19890112
	DE 3900755	C2	19920326		
	JP 01181799	A2	19890719	JP 1988-5495	19880113
	JP 06006078	B4	19940126		
PRAI	JP 1988-5495		19880113		

AB Cl- is detd. in a sample by treating with nitrite and nitrate reductases to destroy NO2- and NO3-, adding inactive amylase, EDTA, and CaEDTA, and measuring the active amylase formed by activation of inactive amylase with Cl-. Test kits contg. the above reagents are described. Thus, .alpha.-amylase was inactivated by dialysis against EDTA-contg. phosphate buffer and added to a soln. contg. CaEDTA, Na2EDTA, and phosphate buffer (pH 7.0); also added were .alpha.- and .beta.-glucosidases, nitrate and nitrite reductases, and NADH. Cl- was detd. by adding a sample (e.g. serum) and 2-chloro-4-nitrophenyl-.beta.-D-maltoheptaoside to this reaction mixt. and measuring the absorbance at 405 and 480 nm. The values obtained were not affected by NO2- and NO3- in the sample.

IC ICM C12Q001-40
ICS G01N033-84

CC 9-5 (Biochemical Methods)

ST chloride detn serum amylase activation; nitrite interference chloride detn serum; nitrate interference chloride detn serum

IT Blood analysis
(chloride detn. in, by amylase activation)

IT Chelating agents
(in chloride detn. by amylase activation)

IT **9000-90-2**, .alpha.-Amylase 9000-92-4, Amylase
RL: **ANST (Analytical study)**
(chloride detn. by activation of)

IT 14797-55-8, Nitrate, uses and miscellaneous
RL: USES (Uses)
(chloride detn. by amylase activation interference from, nitrate reductase for removal of)

IT 14797-65-0, Nitrite, uses and miscellaneous
RL: USES (Uses)
(chloride detn. by amylase activation interference from, nitrite reductase for removal of)

IT **16887-00-6**, Chloride, analysis
RL: ANT (Analyte); **ANST (Analytical study)**
(detn. of, by amylase activation)

IT 9013-03-0, Nitrate reductase 9080-03-9, Nitrite reductase 60-00-4, EDTA, uses and miscellaneous 62-33-9, Calcium EDTA 139-33-3, Disodium EDTA 7440-70-2D, Calcium, complexes
RL: **ANST (Analytical study)**
(in chloride detn. by amylase activation)

L24 ANSWER 31 OF 36 CA COPYRIGHT 2003 ACS

AN 108:182993 CA

TI A new enzymic assay of chloride in serum

AU Ono, Toshihiro; Taniguchi, Junichi; Mitsumaki, Hiroshi; Takahata, Fujiya; Shibuya, Akihiko; Kasahara, Yoshihiko; Koshimizu, Fusaya

CS Isehara Res. Inst., Kanto Chem. Co., Inc., Isehara, 259-11, Japan

SO Clinical Chemistry (Washington, DC, United States) (1988), 34(3), 552-3
CODEN: CLCHAU; ISSN: 0009-9147

DT Journal

LA English

AB This method for enzymic assay of serum Cl is based on detn. of Cl--dependent .alpha.-amylase (EC 3.2.1.1) activity. The ion specificity and practicability of the method for routine use with the Hitachi 705 were evaluated. The anal. range of the method extends from 40 to 160 mmol of Cl/L serum. The reaction rate for samples contg. 100 mM Cl- was 0.17 A/min. Relative std. deviations within-run and between-run were <1.0%.

Correlation with results of a coulometric titrn. method was good. The specificity for Br is 75% of that for Cl-; for the other anions, it is 0%. This enzymic method is generally applicable to wide variety of automated chem. analyzers.

CC 9-2 (Biochemical Methods)

ST serum chloride enzymic detn

IT Blood analysis
(chloride detn. in, of humans by enzymic assay)

IT **16887-00-6**, Chloride, analysis
RL: ANT (Analyte); **ANST (Analytical study)**
(detn. of, in human blood serum by enzymic assay)

IT **9000-90-2**, .alpha.-Amylase
RL: **ANST (Analytical study)**
(in chloride detn. in human blood serum)

IT 24959-67-9, Bromide, uses and miscellaneous
RL: USES (Uses)
(interference by, in chloride enzymic detn.)

L24 ANSWER 35 OF 36 CA COPYRIGHT 2003 ACS

AN 102:91770 CA

TI Optimized conditions for determining activity concentration of .alpha.-amylase in serum, with 1,4-.alpha.-D-4-nitrophenylmaltoheptaoside as substrate

AU Rauscher, Elli; Neumann, Ulrich; Schaich, Eugen; Von Buelow, Sabine; Wahlefeld, August W.

CS Res. Cent. Tutzing, Boehringer Mannheim G.m.b.H., Tutzing, D-8132, Fed. Rep. Ger.

SO Clinical Chemistry (Washington, DC, United States) (1985), 31(1), 14-19
CODEN: CLCHAU; ISSN: 0009-9147

DT Journal

LA English

AB A method for measuring the catalytic activity of .alpha.-amylase (EC 3.2.1.1) in serum and urine by using the substrate 1,4-.alpha.-D-4-nitrophenyl maltoheptaoside is described. A phosphate buffer of pH 7.10, contg. Cl- as activator and .alpha.-glucosidase (EC 3.2.1.20) as the auxiliary enzyme was used. After a lag phase of 4 min at 25.degree. or 30.degree., or 3 min at 37.degree., the increase of absorption of 4-nitrophenol is measured at 410 or 405 nm. The pH value of the assay mixt. is a compromise between optimum pH for the .alpha.-amylase reaction, shortest possible lag phase, and an acceptable absorptivity of 4-nitrophenol. Because the dissocn. of 4-nitrophenol depends strongly on pH and temp., its absorptivity was detd. with various combinations of these variables in the assay. Heparin-treated plasma can be used, but not EDTA, F-, or citrate. Lipemia, Hb .ltoreq.35 .mu.M, bilirubin .ltoreq.170 .mu.M, glucose .ltoreq.100 mM, and ascorbic acid .ltoreq.1 mM of sample do not interfere in the assay.

CC 7-1 (Enzymes)

ST amylase alpha detn nitrophenylmaltoheptaoside serum urine; process optimization alpha amylase detn

IT Process optimization
(in .alpha.-amylase of human serum and urine detn.)

IT Michaelis constant
(of .alpha.-amylase, of human serum)

IT Blood analysis
Urine analysis
(.alpha.-amylase detn. in, of humans, with nitrophenylmaltoheptaoside)

IT Pancreas, composition
Saliva
(.alpha.-amylase of, of human, detn. of, nitrophenylmaltoheptaoside in)

IT **9000-90-2**
RL: ANT (Analyte); **ANST (Analytical study)**
(detn. of, of human serum and urine, with nitrophenylmaltoheptaoside)

IT 9001-42-7 14265-44-2, uses and miscellaneous **16887-00-6**, uses and miscellaneous 74173-31-2

RL: BIOL (Biological study)
(in .alpha.-amylase of human serum and urine detn.)

L24 ANSWER 36 OF 36 CA COPYRIGHT 2003 ACS
AN 98:121754 CA
TI .alpha.-Amylase determination using maltopentaose as substrate
AU Larsen, K.
CS Dep. Clin. Chem., Soenderborg Sygehus, Soenderborg, Den.
SO Journal of Clinical Chemistry and Clinical Biochemistry (1983), 21(1), 45-52
CODEN: JCCBDT; ISSN: 0340-076X
DT Journal
LA English
AB The rationale of choosing a NADP-coupled continuous method, with the substrate maltopentaose, as a method for the detn. of .alpha.-amylase (EC 3.2.1.1) activity is investigated. The method presented is investigated with respect to all reaction parameters, including the possible influence of protein, and shows zero-order reaction kinetics after a 5-6-min. lag phase. The blank reaction from maltopentaose substrate is const. and is 13% of the upper limit of the ref. interval for serum. The course of the blank reaction can be used to check that the maltopentaose is of adequate purity for use in the assay. The Km for maltopentaose is 0.48 mM. There is no interference from endogenous glucose when the total NADP turnover is <0.25 mM. Data for sensitivity, linearity, and long-term precision over an 18-mo period are given, together with ref. intervals for human serum and for urine. The method is recommended for consideration as a ref. method.
CC 7-1 (Enzymes)
ST amylase detn maltopentaose substrate; blood amylase detn maltopentaose; urine amylase detn maltopentaose; saliva amylase detn maltopentaose
IT Urine
(glucose of, of human, .alpha.-amylase detn. in relation to)
IT Proteins
RL: BIOL (Biological study)
(of saliva, of human, .alpha.-amylase detn. in relation to)
IT Blood sugar
(.alpha.-amylase detn. in human serum in relation to)
IT Blood analysis
Urine analysis
(.alpha.-amylase detn. in, in human, maltopentaose as substrate for)
IT Saliva
(.alpha.-amylase detn. in, of human, maltopentaose as substrate for)
IT **9000-90-2**
RL: ANT (Analyte); **ANST (Analytical study)**
(detn. of, in human blood and saliva and urine, with maltopentaose substrate)
IT 53-59-8
RL: BIOL (Biological study)
(in .alpha.-amylase detn., in human blood and saliva and urine)
IT 50-99-7, biological studies
RL: BIOL (Biological study)
(of saliva and urine, of human, .alpha.-amylase detn. in relation to)
IT 7440-70-2, biological studies 14808-79-8, biological studies
16887-00-6, biological studies
RL: BIOL (Biological study)
(.alpha.-amylase detn. in human blood and saliva and urine in presence of)
IT 34620-76-3
RL: BIOL (Biological study)
(.alpha.-amylase detn. with, in human blood and saliva and urine)

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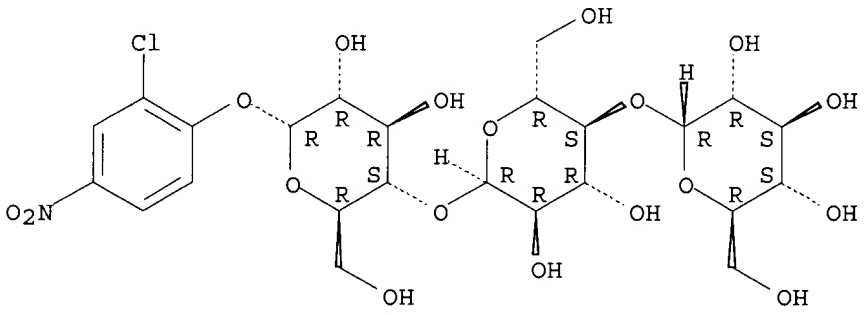
L7 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2003 ACS
RN **118291-90-0** REGISTRY
CN .alpha.-D-Glucopyranoside, 2-chloro-4-nitrophenyl O-.alpha.-D-glucopyranosyl-(1.fwdarw.4)-O-.alpha.-D-glucopyranosyl-(1.fwdarw.4)- (9CI) (CA INDEX NAME)
OTHER NAMES:
CN 2-Chloro-4-nitrophenyl .alpha.-D-maltotrioside
CN 2-Chloro-4-nitrophenyl .alpha.-maltotrioside
FS STEREOSEARCH
MF C24 H34 Cl N O18
SR CA
LC STN Files: BIOSIS, CA, CAPLUS, CASREACT, MEDLINE, TOXCENTER, USPATFULL

Absolute stereochemistry.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

29 REFERENCES IN FILE CA (1957 TO DATE)
1 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
29 REFERENCES IN FILE CAPLUS (1957 TO DATE)

L3 ANSWER 5 OF 5 CA COPYRIGHT 2003 ACS
AN 60:24601 CA
OREF 60:4406g-h,4407a
TI .alpha.-**Amylases** as calcium-metalloenzymes. I. Preparation of **calcium-free** apoamylases by chelation and electrodialysis
AU Stein, Eric A.; Hsiu, Julia; Fischer, Edmond H.
CS Univ. of Washington, Seattle
SO Biochemistry (1964), 3(1), 56-61
DT Journal
LA Unavailable
AB Two methods leading to the complete removal of Ca from the .alpha.-**amylases** of Bacillus subtilis and human saliva are described, namely, chelation by ethylenediaminetetraacetate (EDTA) and electrodialysis. In contrast to earlier procedures, these techniques do not bring about irreversible denaturation, and thus yield Ca-free **amylases** than can be fully reactivated upon restoration of the metal. Electrodialysis proved to be a much more efficient procedure than chelation; whereas removal of Ca from salivary **amylase** required 60 hrs. of dialysis vs. EDTA, it could be achieved in 2-4 hrs. by electrodialysis. Ca-free human salivary **amylase** could be crystd. The rate at which Ca was released from .alpha.-**amylases** varied markedly according to the biol. origin of these enzymes, decreasing in the order mammalian > bacterial > fungal.

ANSWER 1 OF 5 CA COPYRIGHT 2003 ACS

AN 137:212837 CA

TI Improvement of thermostability of a **calcium-free** .alpha.-**amylase** from an alkaliphilic Bacillus sp. by protein engineering

AU Hagihara, Hiroshi; Igarashi, Kazuaki; Hayashi, Yasuhiro; Kitayama, Kaori; Endo, Keiji; Ozawa, Tadahiro; Ozaki, Katsuya; Kawai, Shuji; Ito, Susumu

CS Tochigi Research Laboratories, Kao Corporation, Tochigi, 321-3497, Japan

SO Journal of Applied Glycoscience (2002), 49(3), 281-289
CODEN: JAGLFX; ISSN: 1344-7882

PB Japanese Society of Applied Glycoscience

DT Journal

LA English

AB A novel .alpha.-**amylase** (AmyK38) from an alkaliphilic Bacillus designated KSM-K38 is strongly resistant to chelators and oxidative reagents and contains no calcium. However, thermostabilization of AmyK38 is essential if it is to have industrial applications. Several chimeric enzymes between AmyK38 and the thermostable Arg181-Gly182-deleted mutant (dRG) of an .alpha.-**amylase** AmyK were constructed. A chimeric enzyme contg. the N-terminal 21 amino acid residues of dRG was found to have higher thermostability than the parental AmyK38. By site-directed mutagenesis, AmyK38 was successfully thermostabilized by the single substitution of Tyr11 by Phe without any changes in the kinetic features.

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L35 ANSWER 15 OF 44 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
AN 1998:226406 BIOSIS
DN PREV199800226406
TI **Activation** of Bacillus licheniformis alpha-**amylase** through a disorderfwdarw order transition of the substrate-binding site mediated by a calcium-**sodium**-calcium metal triad.
AU Machius, Mischa (1); Declerck, Nathalie; Huber, Robert; Wiegand, Georg (1)
CS (1) Max-Planck-Inst. Biochemie, D-85152 Planegg-Martinisried Germany
SO Structure (London), (March 15, 1998) Vol. 6, No. 3, pp. 281-292. ISSN: 0969-2126.
DT Article
LA English
AB Background: The structural basis as to how metals regulate the functional state of a protein by altering or stabilizing its conformation has been characterized in relatively few cases because the metal-free form of the protein is often partially disordered and unsuitable for crystallographic analysis. This is not the case, however, for Bacillus licheniformis alpha-**amylase** (BLA) for which the structure of the metal-free form is available. BLA is a hyperthermostable enzyme which is widely used in biotechnology, for example in the breakdown of starch or as a component of detergents. The determination of the structure of BLA in the metal-containing form, together with comparisons to the apo enzyme, will help us to understand the way in which metal ions can regulate enzyme activity. Results: We report here the crystal structure of native, metal-containing BLA. The structure shows that the calcium-binding site which is conserved in all alpha-**amylases** forms part of an unprecedented linear triadic metal array, with two calcium ions flanking a central **sodium** ion. A region around the metal triad comprising 21 residues exhibits a conformational change involving a helix unwinding and a disorder fwdarw order transition compared to the structure of metal-free BLA. Another calcium ion, not previously observed in alpha-**amylases**, is located at the interface between domains A and C. Conclusions: We present a structural description of a major conformational rearrangement mediated by metal ions. The metal induced disorder fwdarw order transition observed in BLA leads to the formation of the extended substratebinding site and explains on a structural level the calcium dependency of alpha-**amylases**. Sequence comparisons indicate that the unique Ca-Na-Ca metal triad and the additional calcium ion located between domains A and C might be found exclusively in bacterial alpha-**amylases** which show increased thermostability. The information presented here may help in the rational design of mutants with enhanced performance in biotechnological applications.

L1 ANSWER 81 OF 109 CA COPYRIGHT 2003 ACS
AN 96:176668 CA
TI Determination of serum guanine deaminase activity with the use of **Good buffer**
AU Nishikawa, Yoko; Suganuma, Hiroshi
CS 2nd Clin. Lab., Osaka Prefect. Hosp., Osaka, Japan
SO Eisei Kensa (1982), 31(2), 158-61
CODEN: EIKEAS; ISSN: 0367-052X
DT Journal
LA Japanese
AB A guanine soln. prepd. in a buffer of 3-cyclohexylaminopropanesulfonic acid and 2-(N-morpholino)ethanesulfonic acid (**Good buffer**) was stable for 24 h. When this was used as substrate in the detn. of serum guanine deaminase activity, no interference from bilirubin or xanthine oxidase was obsd. The results agreed well with those given by the original method.

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d bib ab ind 3

L19 ANSWER 3 OF 179 CA COPYRIGHT 2003 ACS
AN 138:119589 CA
TI Determination of **chloride** and sodium ions based on **amylase** activation
IN Chiang, Vincent
PA Abaxis, Inc., USA
SO U.S. Pat. Appl. Publ., 11 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2003022264	A1	20030130	US 2001-887628	20010622
PRAI	US 2001-887628		20010622		

AB The invention concerns **chloride** ion and sodium ion detn. methods, compns., and assays which are based on the use of sodium ion as an activator for .alpha.-**amylase**. **Chloride** ion and sodium ion detn. are performed by colorimetry, using measurements of .alpha.-**amylase** activity to indirectly measure the desired ion concns. One preferred compn. for **chloride** ion detn. comprises .alpha.-**amylase** that is substantially calcium free, sodium ion in higher concn. than the .alpha.-**amylase**, and an .alpha.-**amylase** activity detecting substrate. In the methods, .alpha.-**amylase** is deactivated by a calcium-binding compd., thereby preventing calcium from bonding with the .alpha.-**amylase**. Next, **chloride** ion and sodium ion stoichiometrically bond with deactivated .alpha.-**amylase**, thereby activating the .alpha.-**amylase**. **Chloride** ion detn. methods are based on using test sample **chloride** as the limiting factor in .alpha.-**amylase** activation and sodium ion detn. methods are based on using test sample sodium as the limiting factor in .alpha.-**amylase** activation.

IC ICM C12Q001-40
NCL 435022000
CC 9-5 (Biochemical Methods)
Section cross-reference(s): 7
ST **chloride** sodium **amylase** colorimetry reagent chelation
IT Chelating agents
(for calcium; sodium activation of **amylase**)
IT Blood analysis
Blood plasma
Blood serum
Body fluid
Chelation
Colorimetry
Urine analysis
(sodium activation of **amylase**)
IT 9000-90-2, .alpha.-**Amylase**
RL: ANT (Analyte); BSU (Biological study, unclassified); PRP (Properties); **ANST (Analytical study)**; BIOL (Biological study)
(calcium-free; sodium activation of **amylase**)
IT 60-00-4, Ethylenediaminetetraacetic acid, uses 1939-36-2 7028-40-2, Tetraacetic acid 13291-61-7, trans-1,2-Cyclohexanediamine-N,N,N',N'-tetraacetic acid
RL: NUU (Other use, unclassified); USES (Uses)
(chelating agent; sodium activation of **amylase**)
IT 16887-00-6, **Chloride** ion, analysis
RL: ANT (Analyte); BUU (Biological use, unclassified); **ANST (Analytical study)**; BIOL (Biological study); USES (Uses)
(**chloride** and sodium ions based on **amylase** activation)

IT 127-09-3, Sodium acetate 994-36-5, Sodium citrate 17341-25-2, Sodium, ion (Na1+), analysis
RL: ANT (Analyte); BUU (Biological use, unclassified); **ANST (Analytical study)**; BIOL (Biological study); USES (Uses)
(sodium activation of **amylase**)

IT 9001-22-3, .beta.-Glucosidase 9001-42-7, .alpha.-Glucosidase 66068-38-0, 4-Nitrophenyl-.alpha.-D-maltopentaoside 74173-31-2, 4-Nitrophenyl-.alpha.-D-maltoheptaoside 90826-64-5, 2-Chloro-4-nitrophenyl-.beta.-D-maltoheptaoside 99304-80-0, 2-Chloro-4-nitrophenyl-.beta.-D-maltopentaoside 118291-90-0, 2-Chloro-4-nitrophenyl-.alpha.-D-maltotrioside
RL: ARG (Analytical reagent use); **ANST (Analytical study)**; USES (Uses)
(sodium activation of **amylase**)

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